PROVIDING CULTURALLY EFFECTIVE AUDIOLOGICAL SERVICES TO THE HISPANIC PEDIATRIC POPULATION

Capstone Project

Presented in Partial Fulfillment of the Requirements for

the Doctor of Audiology

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By

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ABSTRACT

The Hispanic population is the fastest growing minority population in the United States and is expected to make up approximately 15% of the total United States population by the year 2010. In 2003, 18% of the students in elementary and high schools were Hispanic, compared to 6% in 1970. With a large increase in the number of Hispanics, especially children, in the United States there exists a strong need for audiologists to be more culturally diverse and competent, deliver services with respect and without stereotypes, use appropriate language-specific assessments, know when to seek other professional assistance when working with a family with limited English proficiency, and communicate in an effective and appropriate manner with families who have limited English and/or literacy proficiency. After reviewing literature on access to healthcare, Hispanic culture, audiological services to minority populations, this paper identifies and analyzes the barriers Hispanic children encounter to receive appropriate health care and their effect on audiologic care. The paper then discusses the limitations and obstacles audiologists face when providing assessments and services to the pediatric Hispanic population, and provides a framework of tools and sources in order to deliver the most appropriate audiologic care and intervention.

DEDICATION

I am dedicating this project to my family, friends, and the Sunshine Cottage family for their patience, enthusiasm, and unending encouragement.

VITA

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FIELDS OF STUDY

Major Field: Audiology

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INTRODUCTION

The United States is comprised of numerous minority populations, with the Hispanic population being the largest. The Hispanic population is the fastest growing minority group, increasing by 3.5 million people between 2000 and 2002 (U.S. Census Bureau, 2004a) (see Figure 1 and Figure 2). According to the United States Census Bureau, Hispanics will make up 15.5% of the population in 2010, 20.1% in 2030, and 24.4% in 2050 (see Figure 3, Figure 4, and Figure 5). The U. S. Census Bureau estimated there will be approximately fifteen million Hispanic children under the age of eighteen and approximately 4.7 million under the age of five. As the Hispanic population grows in the United States, so does the number of Hispanics who speak Spanish. According to the November 2007 PEW Hispanic Center Report, many Hispanics have limited or no English proficiency. Hearing impairment is one of the most common disorders amongst children. Approximately three to four infants per one thousand live births will have a sensorineural hearing loss, with thirteen in one thousand intensive care infants having a sensorineural hearing loss (Barsky-Firkser & Sun, 1997). Due to the increasing number of Hispanics in the United States, particularly under the age of 18 and who have families with limited English proficiency, it is likely that audiologists will provide services to many Hispanic children with few English skills. Therefore, it is imperative that audiologists are able to provide culturally effective audiological services to the Hispanic pediatric population (see Figure 56). Culturally effective care involves respecting and acknowledging one's customs, behaviors, morals, values, attitudes, expressions, beliefs, and language (Talamantes, Lindeman, & Mouton, 2001). In order for this to occur, there exists a strong need for audiologists to be more aware of cultural diversity and to deliver services with respect and without stereotypes, use appropriate language-specific assessments, know when to seek other professional assistance when working

with a family with limited English proficiency, and communicate in an effective and appropriate manner with families who have limited English and/or literacy proficiency.

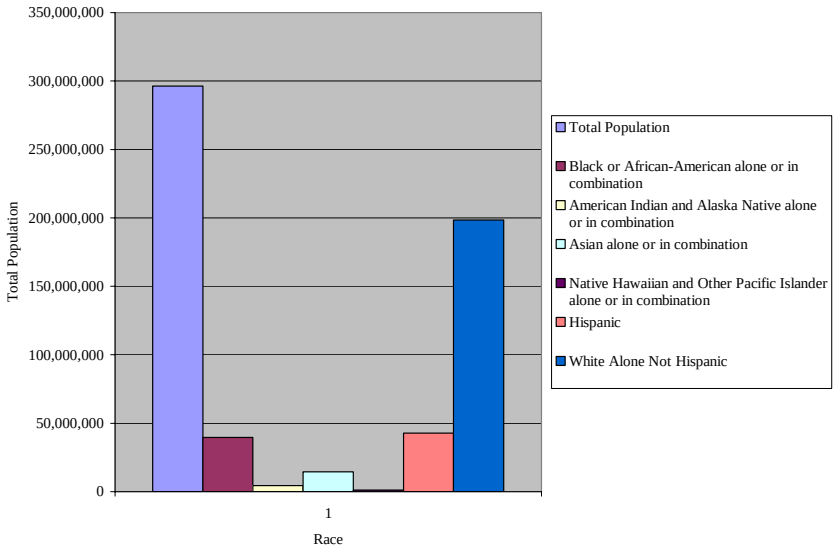


Figure 1. Estimate of the United States population by race alone or in combination with another race as of July 1, 2005 (United States Census Bureau, 2004a).

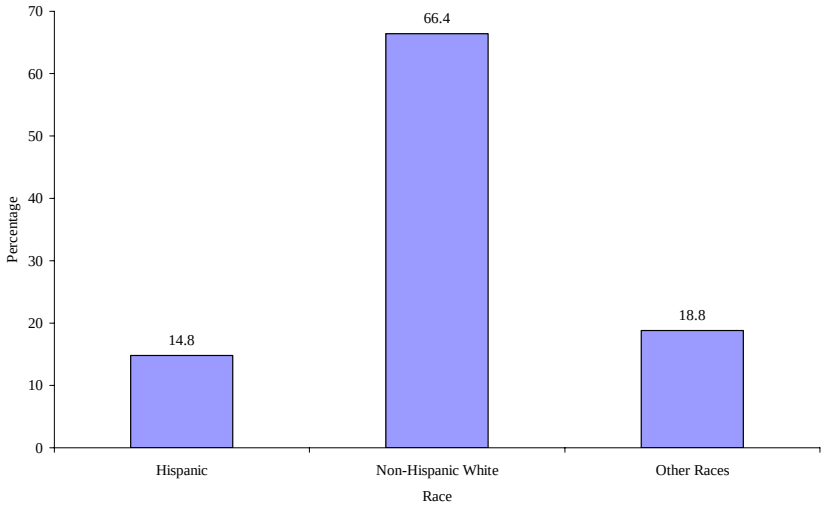


Figure 2. Percentage of population of Hispanics, Non-Hispanic Whites, and other races as of July 1, 2006 (United States Census Bureau, 2007)

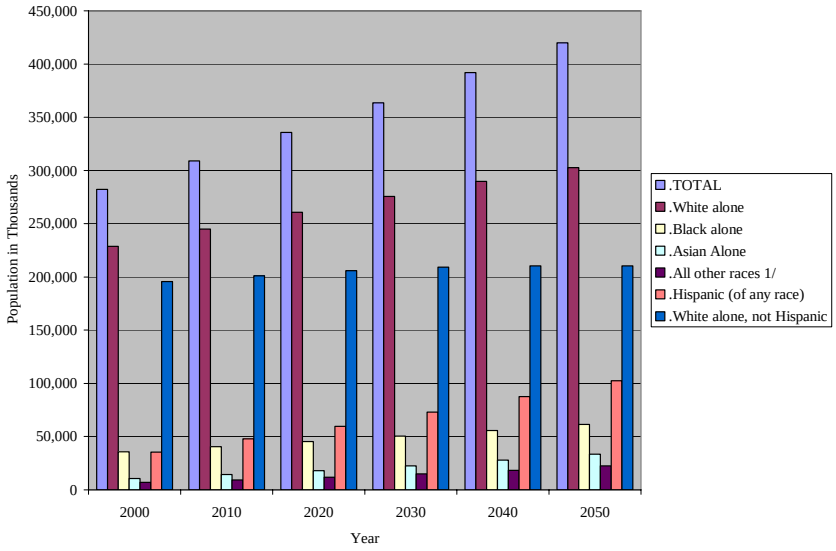


Figure 3. The projected population in thousands of the United States by race from 2000 through 2050 (United States Census Bureau, 2004a).

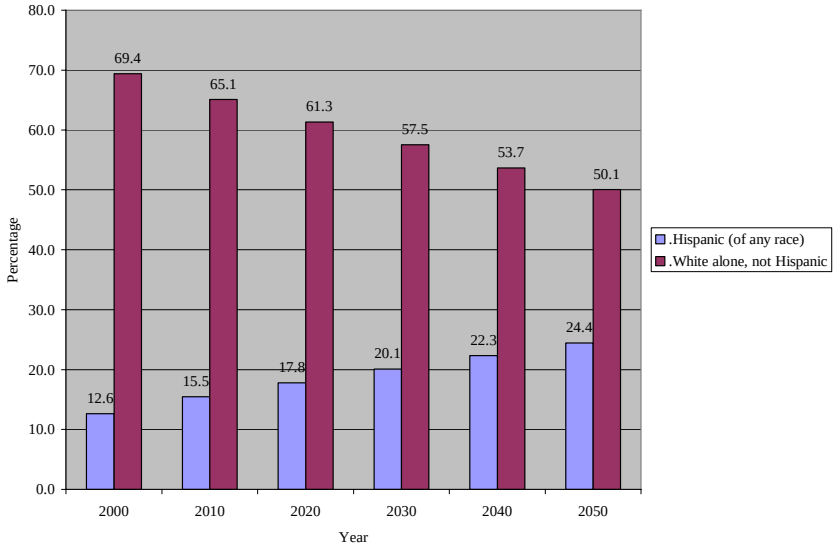
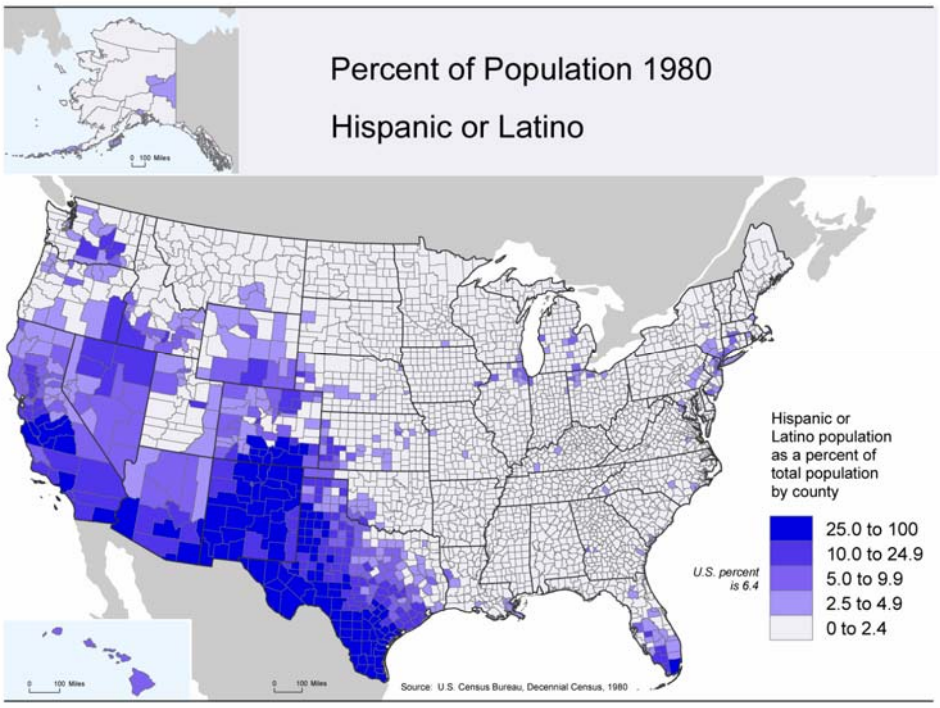


Figure 4. Percent of the projected population in the United States for Hispanics of any race and non-Hispanic whites from 2000 to 2050 (United States Census Bureau, 2004a).



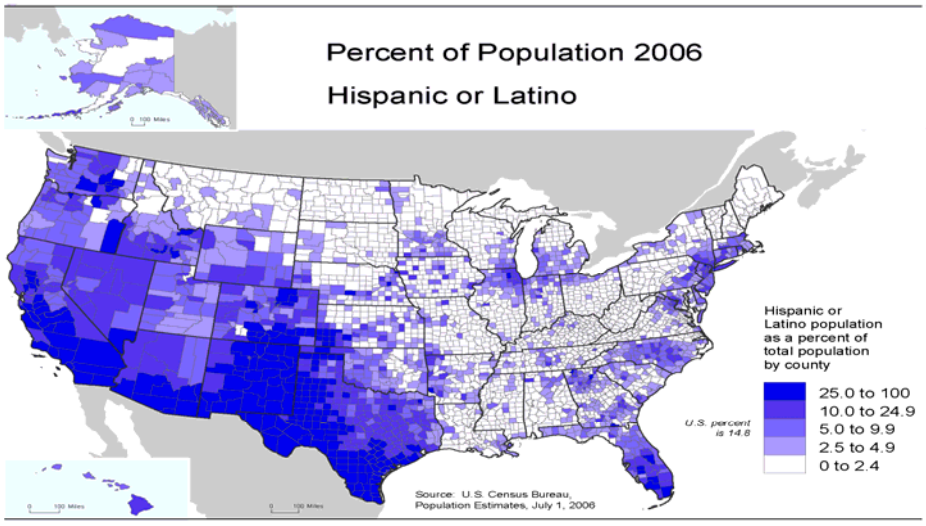


Figure 5. The top picture displays the percent of population in 1980 of the Hispanic population in the United States. The bottom picture displays the percept of population in 2006 of the Hispanic population (US Census Bureau, 2006).

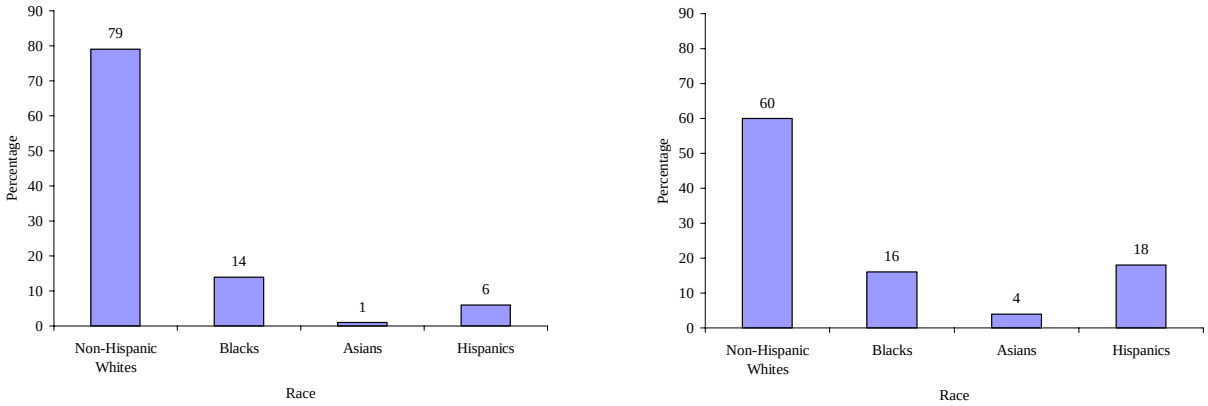


Figure 6. The graph on the left demonstrates the percentage of children in elementary and high school in 1970 as compared to the graph on the right that demonstrates the percentage of children in elementary and high school in 2003 (United States Census Bureau, 2007).

THE HISPANIC POPULATION

Culture, Race, and Ethnicity

The terms culture, race, and ethnicity maybe considered difficult to define. Individuals and organizations often have differing views and opinions of these terms. The Merriam-Webster (2005) dictionary defines culture as "the integrated pattern of human knowledge, belief, and behavior that depends upon the capacity for learning and transmitting knowledge to succeeding generations," and "the customary beliefs, social forms, and material traits of a racial, religious, or social group." Gender, religion, language, race, age, socioeconomic status, ethnicity, and educational level all influence and have an impact on one's culture. One's culture is learned, transmitted across generations, and impacts individuals differently. Race is defined as a "family,

tribe, people, or nation belonging to the same stock," and "a class or kind of people unified by shared interests, habits, or characteristics" (Merriam-Webster, 2005). People often define race by physical characteristics, such as skin color, hair texture, eye color and shape, and facial features. However, physical characteristics are not the only defining factors of a person's race. Characteristics of race vary between different societies. And ethnicity is defined as "of or relating to large groups of people classed according to common racial, national, tribal, religious, linguistic, or cultural origin or background" (Merriam-Webster, 2005). Ethnicity involves having a shared language, national origin, and social practices.

Hispanics take pride in belonging to a race, although the term "Hispanic" actually describes an ethnic group rather than a race (Tafoya, 2004). Hispanics can be of any race, and can speak a language other than Spanish as a predominant language (Iglesias, 2001). Hispanics identify themselves as either white, black, Asian, American Indian, or Pacific Islander. However, according to the 2000 Census, 42% of the Hispanic population identify themselves as "some other race." Identifying as a race for Hispanics is much more than a skin color or even demographics, but as characteristics such as economic status, belonging to society, and educational level (Tafoya). About half of Hispanics of Mexican descent identify themselves as white while the other half refer to themselves as some other race (Tafoya). However, 63% of Hispanics of Mexican descent in Texas regard themselves as being white, which is most likely the repercussion of the Civil Rights movement (Tafoya).

The terms Hispanic and Latino are often used interchangeably; however, the words are greatly debated within the Hispanic/Latino community. The term Hispanic signifies those people who have come from the Iberian Peninsula; whereas the term Latino signifies those people coming from Latin America. The use of the terms "Hispanic" and "Latino" are mainly

dependent upon the geographic location in the United States. "Hispanic" is primarily used in Texas, while "Latino" is used in California. Most of the Hispanic population has emigrated from Latin American countries. The Latino population encompasses a multitude of communities including: Mexican, Puerto Rican, Dominican, Columbian, Salvadoran, and Cuban. The two largest subgroups in the United States of the Hispanic population are the Mexican-Americans and Puerto Ricans (Iglesias, 2001). There are major differences among these communities; however, they do share common cultures, language, importance of family, and perspectives of health, death, and well-being (Valdez, Giachello, Rodriguez-Trias, Gomez, & de la Rocha, 1993). For the purposes of this paper, the term Hispanic will be used to refer to individuals who identify themselves as Latino or of Hispanic origin.

Stereotypes About Hispanics

Many stereotypes exist about the Hispanic population, such as assuming all Hispanics speak Spanish, that they are uneducated, or that they are poor (Fores, Olson, & Tomany-Korman, 2005). It has been shown that overt and covert biases, stereotypes, and prejudice regarding Hispanic people can be present with health care providers, including audiologists (Flores, Olson, & Tomany-Korman; American Academy of Pediatrics, 2000; Betancourt, J. R., Carrillo, J. E., Green, A. R., & Maina, A., 2004; Donovan, E. F., & Rose, B. 2005; Mayberry, R. M.; Mili, Fatima; & Ofili, E. 2000; Valdez, R. B., Giachello, A., Rodriguez-Trias, H., Gomez, P., & de la Rocha, C. 1993). Racial prejudice and stereotypes influence and impact the quality and access to health care. Flores, Olson, and Tomany-Korman analyzed data from the 2000 National Survey of Early Childhood Health of 2608 children aging from four months to thirty five months of age. Sociodemographics, parent's perceptions on pediatric care, interactions with health care providers, and the use of health care were assessed. Sixty-five percent of Hispanic parents

reported health care providers routinely asked about use of alcohol or drugs in the household and 20% were asked about violence in the community as compared 35% and 6%, respectively for non-Hispanics whites (see Figure 7). Results from the survey indicated Hispanics and other minorities are more likely to be asked questions about drugs, alcohol, and violence by their physician compared to non-Hispanic white patients.

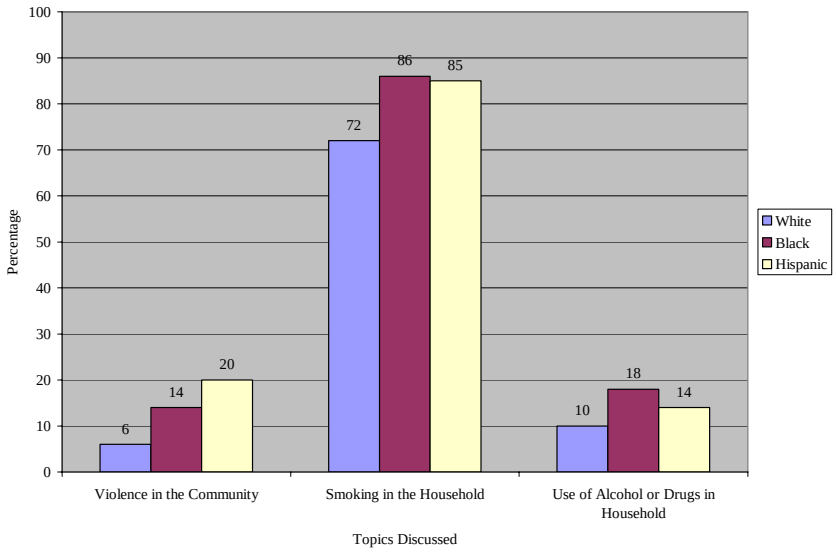


Figure 7.Topics that were found to be discussed with parents by a regular health care provider of the parents of white, black, and Hispanic children aging from 4 months through 35 months. Data is taken from the 2000 National Survey of Early Childhood Health, analyzing 2,608 children from all fifty states (Flores, Olson, & Tomany-Korman, 2005).

Audiology and the Hispanic Culture

As a group, audiologists do not represent diversity. According to Janota and the Surveys and Information Team of ASHA (2006), 94.7% of the audiologists were white and 1.4% identified themselves as Hispanic or Latino. Audiologists have the skills, knowledge, and experience to diagnose and assess hearing loss and provide services to patients with hearing

impairment. In order to provide the most appropriate services, audiologists must put aside cultural differences, misconceptions, and stereotypes that will impact relationships with their patients. Expertise, knowledge, and research should guide the audiologist when working with hearing impaired children and their families to put the child's best interest first. Audiologists need to adhere to professional standards. When working with children and families of diverse cultures and races, audiologists should not discriminate or demonstrate prejudice. ASHA's Code of Ethics state under Principles of Ethics I, "individuals shall not discriminate in the delivery of professional services or the conduct of research and scholarly activities on the basis of race or ethnicity, gender, age, religion, national origin, sexual orientation, or disability" (2003). All services, including assessment, treatment, and counseling need to be conducted without biases or discrimination. Under the Principle of Ethics II in the ASHA Code of Ethics, it is stated that "Individuals shall engage in only those aspects of the professions that are within the scope of their competence, considering their level of education, training, and experience." While working with families of other cultures, especially families who speak a language other than English, audiologists need to seek the services of other professionals to ensure services are properly delivered to the patient. Part C under the Principle of Ethics II states "Individuals shall continue their professional development throughout their careers." Even though audiologists need to have professional development for licensure and certification, audiologists should continually gain knowledge about other cultures in order to provide culturally appropriate services. Audiologists need to acquire knowledge about the cultures of the population they serve. An audiologist's relationship with a family will be much stronger if the audiologist demonstrates cultural competence and respect.

In order to provide optimal audiological care to the pediatric Hispanic population, there is

a strong need for audiologists to be more culturally diverse and competent. Cultural factors such as socioeconomic status, customs, religious beliefs, language, behaviors, and values have an influence on the quality of service and care given to minorities (American Academy of Pediatrics, 2004). Despite cultural differences, pediatric audiologists need to be able to interact with children and their families with success and respect by gaining knowledge and showing sensitivity toward diverse populations. Due to the increase in the number of Hispanic children in the United States, it is imperative that efforts are made to enhance knowledge and cultural awareness about the Hispanic culture, particularly regarding the concept of 'La Familia' or 'the family.'

Family involvement is a significant factor when providing services to any hearing impaired child. In the Hispanic culture, family involvement is especially important. Traditionally, Hispanics have a strong commitment to their families and value the importance of all family members (i.e. *La Familia).* Often, Hispanics have large families and they include extended family members in many daily activities. Family support is often welcomed and expected by most Hispanics, especially when making important decisions (Warda, 2000). Providing services to a Hispanic with hearing impairment may involve working and communicating with multiple family members. Grandparents, aunts, uncles, and cousins will often be the support for the child's parents and may accompany the child to audiological appointments. Realizing and more importantly, acknowledging the significance of the family to the hearing impaired child will allow the audiologist to better serve the child and the family. The audiologist will need to develop relationships with the family members involved in the child's life.

Effectively communicating with a patient's family allows them to develop a trusting, respectful and integral relationship with the audiologist. While analyzing parental perceptions about health care services and parental interactions with health care providers in the National Survey of Early Childhood Health of 2000**,** Flores, Olson, and Tomany-Korman (2005) found that Hispanic parents reported health care providers never or rarely took time to understand their child's specific needs. Hispanic parents also reported health care providers did not spend enough time with their children during medical visits. These findings suggest Hispanic parents do not feel health care providers spend enough time with or express concerns regarding their child. Even though physicians and other health care providers might spend the same amount of time with a non-Hispanic child as they do with a Hispanic child, the perceptions of the Hispanic parent are much different than a non-Hispanic parent. Therefore, audiologists need to be mindful and more aware of the cultural differences when counseling and spending time with a Hispanic family.

Lower literacy levels in English and limited English skills can have an impact on the communication and professional relationship between the audiologist and the Hispanic family (ASHA, 1985). Language barriers play a significant role and impact the delivery of health care services for pediatric Hispanic patients (Casey, Blewett, & Call, 2004; Flores, Abreu, Schwartz, & Hill, 2000; Flores et al., 2003; Flores, Olson, & Tomany-Korman, 2005). Flores, Abreu, Schwartz, and Hill analyzed three cases which demonstrate the importance of the impact language and culture have on the quality of health care when working with pediatrics. One case involved a two year old Hispanic girl who was brought to the emergency room with shoulder pain. The mother told the attending resident in Spanish that her daughter struck her shoulder when she fell off her tricycle; however, the resident interpreted what the mother was saying to

mean that the child was hit, leading to Department of Social Services to be contacted. Without a Spanish interpreter, the caseworker spoke with the mother and had the mother sign over custody of the child. The Spanish interpreter arrived later to speak with the mother, and the mother was able to gain custody of her child forty-eight hours later. This case demonstrates the major problems that can occur with a language barrier, especially when using medical terminology, and further illustrates the importance for professionals to use medical interpreters when a professional is not fluent in a language. Professionals working with a family with limited English should not assume the parents speak fluent English or that they understand all of the information being presented to them. From the case studies, it is evident that Spanish speaking parents with limited English skills will most likely not understand medical terminology, the diagnosis, the prognosis, or recommendations. Assumptions can lead to prolonged treatment, misinformed and misguided parents, and inadequate treatment of the child. With lower literacy levels in English, parents may not fully understand consent forms, other important forms or educational materials. To ensure miscommunication does not occur, the professional needs to state important information multiple times and have the parent repeat the information back to the professional. Many Hispanic families speak Spanish as their primary language. They may therefore experience communication anxiety when interacting with health care professionals, potentially leading to miscommunication (American Academy of Pediatrics, 2004). Miscommunication and communication anxiety may in turn create barriers to providing the best audiologic care. For example, misunderstandings can occur when taking case history information, counseling the family, and providing habilitation and rehabilitation to the child. Misunderstandings can also be present when the patient is referred from the audiologist to the otologist. The family might relay the wrong or misunderstood information to the otologist and

can then relay misunderstood information from the otologist to the audiologist. Language barriers can have an impediment on the quality of care for a pediatric Hispanic child leading to misunderstandings and inadequate care. Misunderstandings and miscommunication can be avoided by employing interpreters, providing important forms and brochures in Spanish, and carefully explaining diagnosis, treatment, and recommendations for the child.

The potential for miscommunication between Spanish speaking patients and English speaking audiologists underscores the need for audiologists to have strong working relationships with the other professionals who might also be working with the Hispanic pediatric population. A national survey of 117 state administrators of early childhood programs across the nation found language difficulties to be a significant barrier for Hispanic families to fully utilize early childhood services (Buysse, Castro, West, & Skinner, 2005). Other professionals may include, but not limited to, speech language pathologists, occupational therapists, physical therapists, social workers, otologists, teachers and early childhood intervention specialists.

ACCESS TO HEALTHCARE FOR HISPANICS

Access to healthcare has become very difficult for many children, especially the poor, uninsured, and racial and ethnic minorities including Hispanics (American Academy of Pediatrics, 2000; Betancourt, Carrillo, Green, & Maina, 2004; Donovan & Rose, 2005; Flores, Olson, & Tomany-Korman, 2005; Mayberry, Mili, & Ofili, 2000; Newacheck, Hughes, & Stoddard, 1996; Shaw &l Carrasquillo, 2006; Shone et al., 2003; Valdez, Giachello, Rodriguez-Trias, Gomez, & de la Rocha, 1993). At risk children are more likely than insured, non-poor white children to have fewer physician visits, receive less preventative care, have poorer quality of health services, receive inadequate immunizations, travel longer distances to see a physician, spend longer times in waiting rooms, be referred to physicians less often, and are less likely to be

seen by a physician when ill (Flores, Olson, & Tomany-Korman; Newacheck, Hughes, & Stoddard). It is imperative for audiologists to be receptive and mindful of the existence of these disparities for Hispanic children within the healthcare system. All of these factors have an influence on Hispanic children receiving appropriate healthcare and will most likely directly or indirectly impact audiologic care.

Insurance Coverage

The insurance status of a child is an important factor that determines access to appropriate healthcare. A significant number of Hispanic children are covered by Medicaid, State Children's Health Insurance Program (SCHIP), have minimal insurance coverage, or do not have health insurance (Flores, Olson, & Tomany-Korman, 2005; Newacheck, Hughes, and Stoddard, 1996; Racine, Kaestner, Joyce & Colman, 2001; Shone et al., 2003). Flores, Olson, and Tomany-Korman confirmed the existence of racial and ethnic disparities in insurance coverage by finding 31% of Hispanic children to be uninsured, 29% having private insurance, and 40% having public insurance. This compares to 9% of non-Hispanic white children being uninsured, 72% having private insurance, and 19% having public insurance (see Figure 8). Medicaid is the largest publicly funded health financing program for low-income individuals. Funding for Medicaid and eligibility requirements vary from state to state. Families are eligible for Medicaid if they have incomes below the poverty level, which includes many Hispanic families (Newacheck, Hughes, & Stoddard). Shaw and Carrasquillo examined health insurance coverage from 1993 to 2004 for Hispanics by subgroup and immigrant status, where they found an increase in the number of uninsured Hispanics of 8.4 million in 1992 to 13.7 million in 2004. The study stated the main barrier to insurance coverage for Hispanics to be the lack of employer sponsored insurance indicating 59.9% of non-Hispanic whites had employee based insurance

coverage compared to 39.9% of Hispanics. The authors contributed the lack of employee based insurance coverage for Hispanics to be the result of Hispanics working predominantly in low-wage jobs or small businesses. Eligibility, parental understandings of federal and state programs, and enrollment in Medicaid and SCHIP are all factors that hinder children from being insured, potentially affecting their access to appropriate audiologic care (Flores, Olson, & Tomany-Korman). On the other hand, for those children that might have insurance, preventive services are often not used due to coverage limitations, large deductibles, and co-payments. A challenge for pediatric audiologists will be providing diagnostic and rehabilitative services for children who have minimal to no insurance coverage, and/or whose parents have a low source of income.

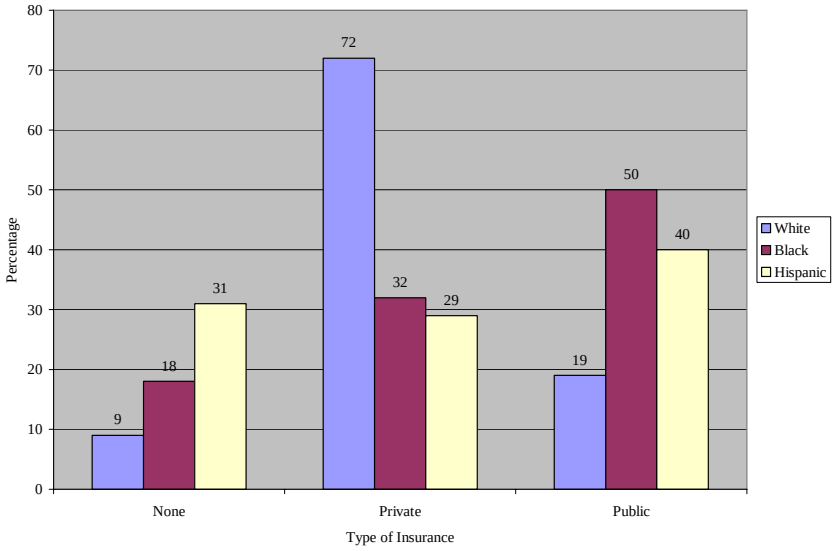


Figure 8. These are the types of insurance coverage for white, black, and Hispanic children aging from 4 months through 35 months. Data is taken from the 2000 National Survey of Early Childhood Health, analyzing 2,608 children from all fifty states (Flores, Olson, & Tomany-Korman, 2005).

There is a risk that children from lower income families may be fit with low-end amplification instead of more appropriate high-end technology. Even though fitting a child with lower end technology may not be the best option for amplification, the child will most likely be able to benefit from the hearing aids to develop appropriate speech and language, as well as excelling in academics. Depending on the demographics of the child, many organizations do provide assistance in purchasing hearing aids to children of low income families. However, the demand for hearing aids for low income families may be much higher in certain cities. Therefore, organizations may have to distribute their money for hearing aids to a multitude of families, which might result with a child having low end amplification. Some hearing aid manufacturers are also able to provide loaner hearing aid programs in order to provide a child with amplification for several months to allow a family to accumulate money to purchase personal hearing aids.

Access to healthcare, including audiology, can also be problematic for those Hispanic children covered under Medicaid. Because there is a lack of reimbursement from Medicaid, numerous audiology facilities, otolaryngology practices, and physicians do not see Medicaid patients. McManus, Levtov, White, Forsman, and Foust (2005) found Medicaid fees for more than half of the hearing services were declined with an average reimbursement rate of $59.98 for diagnostic and evaluation (code 92506). This has led to the shortage of participating physicians and healthcare providers, leading to more difficultly for children to be seen by existing participating providers. In fact, Medicaid and SCHIP do not guarantee access to medical care (Valdez, Giachello, Rodriguez-Trias, Gomez, & de la Rocha, 1993). Therefore many children, including Hispanic children, who are in need of audiologic testing or who have middle ear pathology are at risk of going unseen by an audiologist or physician. Since coverage and

eligibility by Medicaid and/or SCHIP insurance varies from state to state, a child with hearing loss may have difficulty obtaining audiological services covered by Medicaid and/or SCHIP or may not be eligible for Medicaid and/or SCHIP in another state.

Several studies have revealed a large portion of minority children are not seen or followed by one physician (Flores, Olson, & Tomany-Korman, 2005; Newacheck, Hughes, & Stoddard, 1996; Shone et al., 2003). Instead, minority children often receive their primary healthcare in community centers, emergency rooms, or public clinics in urban areas (Flores, Olson, & Tomany-Korman; Newacheck, Hughes, & Stoddard; Shone et al). This is compared to white, non-poor, insured children who are primarily seen by their primary care physician (see Figure 9). Newacheck, Hughes, and Stoddard found 80.2% of uninsured children and 83.5% of minority children to have a usual source of care, compared to 92.9% of children from white, non-poor insured families. The study conducted by Flores, Olson, and Tomany-Korman found 58% of Hispanic children were patients at a private or group practice, 41% went to community health centers or public clinics, and 2% went to emergency rooms for a usual source of care. This is compared to 80% of white children being seen at a private or group practice, 18% at community health center or public clinic, and 2% being seen at an emergency room. Emergency room departments and/or public health clinics provide after hours care, which can be more convenient for parents who are unable to take their child to a physician during regular office hours. Children's medical needs are also often met by health programs at schools (Casey, Blewett, & Call). With community centers or public clinics as a medical home, a child is less likely to receive well-child check-ups, immunizations, and preventive care. They are more likely to not have access to regular physicians.

Audiologists need to mindful of their Hispanic patients whom might not have access to a physician on a consistent basis. The audiologist may have difficulty communicating effectively with the child's physician. If a child does not receive routine healthcare visits, a speech-language delay or a hearing loss can go undetected. Without appropriate preventative care, a child may not receive appropriate medications to treat illness, especially if the child has otitis media.

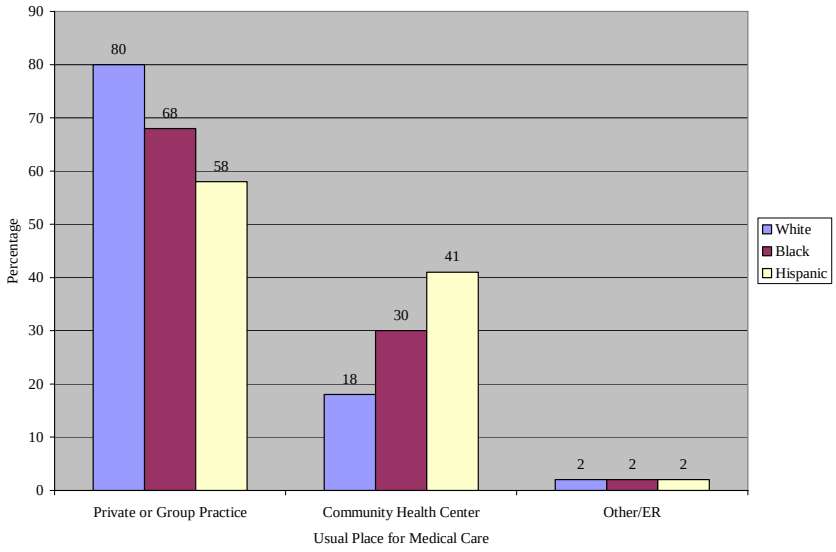


Figure 9. These display the types of usual source for medical care for white, black, and Hispanic children aging from 4 months through 35 months. Data is taken from 2000 National Survey of Early Childhood Health of 2,608 children (Flores, Olson, & Tomany-Korman, 2005).

Hispanics Living in Rural Areas

The Hispanic population has drastically increased in the rural communities since 1980 (Kandel & Newman, 2004; USDA ERS, 2007). Southern and midwestern states have seen the most change in population in the rural communities from 1990 to 2000, with Hispanic growth rates of 120 to 400% (USDA ERS). During the 1990s, 1,913 rural counties had an 84% growth

in Hispanics, with an additional 149 counties having an average growth of 345%, as compared to non-Hispanics growing 8% and 15% respectively (Kandel & Newman). According to Kandel and Newman, the counties who saw the greatest growth in the Hispanic population often employed large numbers of lowered skilled workers for manufacturing plants. Often these Hispanics are more likely to have recently arrived in the United States, have limited English skills, and are undocumented (Kandel & Newman). It was also noted that disparities existed with average annual earnings in rural areas between Hispanics and non-Hispanic whites with average earnings being $18,400 and $23,900, respectively (Kandel & Newman). Hispanics living in rural communities are more likely to live in crowded or shared housing, with 26% of the rural Hispanic population living in poverty compared to 11% of rural non-Hispanic whites living in poverty (USDA ERA). According to Casey, Blewett, and Call (2004), rural areas lacked physicians, dentists, interpreters, and bilingual health professionals. Physicians and dentists in rural communities often are reluctant to participate in Medicaid and SCHIP, accept new patients, and see patients who require using an interpreter (Casey, Blewett, & Call).

Audiologists are confronted with many challenges when working with children who live in rural areas including a shortage of professionals, a lack of personal and public transportation, and poverty stricken conditions. According to a 2006 ASHA survey of 2,354 audiologists, nearly half of the audiologists were employed in metropolitan/urban areas, one-third worked in suburban areas, and fifteen percent worked in a rural setting (Janota & Surveys and Information Team, 2006). For the audiologists who worked in a rural setting, many worked in an educational setting. Because the majority of audiologists do not work in a rural community, most children living in rural areas must travel in order to receive audiologic services. Traveling greater distances for appointments requires the child's caregiver to have reliable transportation, time,

and a commitment to the child. Audiologic appointments will most likely need to be scheduled for larger time slots in order to consolidate multiple services into fewer appointment times. Servicing rural hearing impaired children and their families requires the audiologist to be an effective communicator with the family. The audiologist may often need to troubleshoot hearing aids, FM systems, and cochlear implants via the telephone when distance prevents a child from being seen by an audiologist. Using a telepractice service can be of benefit in providing audiological services to families who live in rural communities (Krumm, 2005). Even though telepractice can be a great benefit for the family and for the audiologist, telepractice would require the family to have access to the internet.

For audiologists who are employed in a rural setting, challenges emerge in providing culturally appropriate services and using interpreting services. Casey, Blewett, and Call (2004), found a deficit in bilingual healthcare providers and interpreters in rural communities. Even though an audiologist might be available in a rural community, language and cultural barriers can prevent the audiologist from providing the most appropriate audiological services to a Hispanic child.

For a family living in a rural community or in an urban area, lack of transportation can present challenges and difficulties for all concerned. Hispanic families may find it problematic to obtain transportation or they must rely on a family member or a friend to have transportation. Transportation services, such as those offered through Medicaid, can be offered at no charge to a child's family in order to transport the child to healthcare appointments. However, there is a possibility the transportation services may not be reliable in transporting the child on time to appointments, and the child may have to wait for a significant amount of time before the transportation service is able to pick them up from the appointment. The child's audiologist

might need to be flexible for scheduling the child with hearing loss to receive services when transportation is limited. Without the convenience of easily accessible transportation, hearing aid adjustments, testing, assessments, counseling sessions, and cochlear implant mapping can be challenging and complex.

Hispanic Single Mothers

The United States Census Bureau (2004c) reported for 2003 that 28% of Hispanic families were maintained by a single mother compared to 21% of white families maintained by a single mother. Hispanic women bear more children at younger ages, are more likely to be single parents, and often receive late or no prenatal care (Flores, Olson, & Tomany-Korman, 2005) (see Figure 10). Single mothers of children with hearing loss may find challenges and difficulties when finding time to take a child to audiologic appointments, physician visits, and speech-language therapy. For single mothers who are the sole income provider, taking time off work may not be feasible. Single mothers may not have time or the energy to conduct listening activities with their child. All of these issues faced by single mothers put Hispanic children at a greater risk for lack of medical and audiologic care.

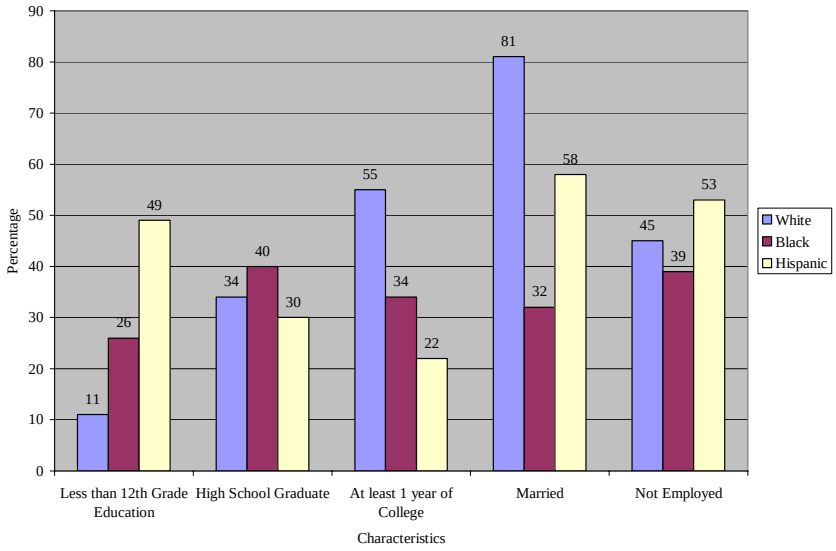


Figure 10. This figure represents the characteristics of white, black, and Hispanic mothers of children aging from 4 months to 35 months. Data is taken from 2000 National Survey of Early Childhood Health of 2,608 children (Flores, Olson, & Tomany-Korman, 2005).

PROVIDING LANGUAGE SPECIFIC ASSESSMENT

With the increase in the number of Hispanics in the United States, particularly those that speak primarily Spanish, it is important for audiologists to provide assessments that are culturally appropriate, free of bias and prejudice, and conducted using appropriate language-specific assessments. It is also of importance to note that assessments, case history forms, and other important forms should undergo a vigorous translation and are tested in the Spanish language and with the patient population to ensure cultural appropriateness (Talamantes, Lindeman, & Mouton, 2001).

Obtaining a Case History

The case history information is vital to the diagnostic evaluation of a child. Questions

regarding pregnancy, birth history, family history, parental concerns, and developmental milestones are imperative in gaining information regarding the child's hearing. Audiologists should be culturally sensitive and competent when evaluating a Hispanic child. Therefore, it would be important to not only have an understanding but to also have knowledge about Hispanics such as values, attitudes, beliefs, language, and customs. Based on the child's and family's background (Mexican, Columbian, Dominican, etc.), beliefs and values unique to that family shape their worldview (Talamantes, Lindeman, & Mouton, 2001). While obtaining case history information, the audiologist needs to be able to interact respectfully and effectively with the family regardless of cultural differences (American Academy of Pediatrics, 2004). Hispanics will often gain the trust and confidence of their healthcare provider when the providers take time with the family and shows respect and attentiveness. For the Hispanic culture, it is respectful to participate in small-talk before beginning to take medical history. To demonstrate respect, greet the family with a handshake, gesturing should be avoided, and older persons should be addressed by their last name (i.e. Mr. or Mrs.) (Talamantes, Lindeman, & Mouton; Warda, 2000). It is also the case within the Hispanic culture, that question authority is often discouraged. Therefore, the audiologist should encourage the parents and family to ask questions, especially as audiologic terminology and tests are often new words for the parents (Talamantes, Lindeman, & Mouton). As certain Hispanic cultures have particular beliefs about illnesses, remedies, and medications, it would be effective for the audiologist to establish rapport with the family by asking and listening about cultural beliefs regarding hearing loss (Talamantes, Lindeman, & Mouton; Warda). As a relationship develops between the audiologist and the family, touching (such as hugs) is often appropriate and welcomed (Warda).

Paper Assessments

Utilizing paper assessments, which are completed by the parents, allows the audiologist to gain additional information regarding a child's hearing, use with amplification, and monitor hearing development. Not only are these assessments used to gain greater knowledge about an infants hearing with amplification, but these assessments can be utilized when communication between the audiologist and the parent is limited (American Academy of Audiology, 2003). Currently, two assessments, the Early Listening Function test (ELF) and the Children's Home Inventory of Listening Difficulties (CHILD), are available in Spanish through Phonak Hearing Systems. With twelve listening activities and a questionnaire, the ELF is used for early intervention of hearing loss, to monitor auditory detection, and to assess hearing aid outcomes (Anderson, 2002). The CHILD is used for children of developmental age of three years to twelve years to assess hearing aid benefit, assess assistive listening devices, and to monitory auditory progress (Anderson & Smaldino, 2000). When these assessments are used and completed in the parent's predominant language, the audiologist is able to acquire greater knowledge about the child's hearing abilities. By gaining additional information about a child's hearing and amplification, the audiologist will be able to provide improved quality of care and management. However, it should be noted that psychometric data is not published at this time on these two assessments, particularly with Spanish speaking children, and should not be the primary functional assessment tool (American Academy of Audiology).

Speech Audiometry

Conducting speech audiometry can lead to numerous challenges in the presence of a language barrier. Challenges and concerns become apparent when a monolingual English speaking audiologist needs to obtain reliable speech audiometry information on a monolingual

Spanish speaking child. Speech audiometry should be conducted in the patient's predominant language (Cokely & Yager, 1993; Iglesias, 2001; Martin & Hart, 1978; McCullough & Wilson, 2001). However, dialectal differences and exposure to vocabulary words can impact how a child performs on a speech audiometry task (Iglesias; Woods, Peña, & Martin, 2004). Dialectal differences vary across the United States, such as Mexican Spanish dialects in California and Texas, Puerto Rican dialects in New York, and Cuban dialects in Florida (Iglesias). For example, multiple words in Spanish can be used for the color "brown," depending on the Spanish dialect (Iglesias).

Research has been conducted to investigate pre-recorded speech recognition thresholds (SRT) in Spanish administered by non-Spanish speaking audiologists to Spanish speaking children (Martin & Hart, 1977). Martin and Hart demonstrated that their Spanish SRT word list resulted in equivalent scores compared to the English SRT word list. Martin and Hart also found that administering a recorded Spanish SRT word list to Spanish speaking children resulted in scores similar to their pure-tone average. When a language barrier interferes in conducting an SRT using English spondee word list, an audiologist can use a recorded Spanish bysyllabic word list in order to validate the pure tone average. A language barrier can interfere with the child understanding the directions and the task during pure tone testing; therefore, validating the pure tone average with the SRT is important.

Word lists have also been developed in Spanish for word recognition testing (Cokely & Yager, 1993; McCullough & Wilson, 2001). Due to the limited amount of monosyllabic words in the Spanish language, Spanish word recognition lists consist of bisyllabic words (McCullough & Wilson). Recorded versions of Spanish speech materials are available through Auditec of St. Louis (Cokely & Yager). Normative data has been conducted by using native Spanish adult

speakers with oral responses, resulting in psychometric functions similar to English monosyllabic words for adults (Cokely & Yager). When a recorded version of Spanish speech tests is given, responses can be given orally, through written responses, or by pointing to pictures. However, the type of response that can be given is limited by the age of the child. According to Cokely and Yager, monolingual English-speaking audiologists are able to accurately score Spanish oral responses from word recognition testing for adults. Cokely and Yager also found audiologists who had knowledge of Spanish were able to more accurately score responses than audiologists who had no knowledge of Spanish; however, the differences were not clinically significant. Even though it has been demonstrated that non-Spanish speaking audiologists can administer a recorded Spanish speech test to an adult, research needs to be conducted with these Spanish word lists for children. Poor Spanish articulation and limited language of the child can impact the results (Iglesias, 2001). A hearing impaired Spanish speaking child with speech and language delays may not have the language skills to perform the tasks or have poor intelligibility. A closed set picture identification task may be another option for determining word recognition performance. McCullough and Wilson evaluated the performance of the Spanish Picture-Identification Task as compared to conventional Spanish or English word recognition tests with adults. They found scores from the Spanish Picture-Identification Task word lists to be similar to the English-Picture-Identification Task. The Spanish-Picture-Identification Task is a closed set test in which the patient points to the word that corresponds to the word that he hears. The closed set task allows the audiologist, who is a non-native speaker of Spanish, to obtain a word recognition score for a patient whose first language is Spanish. Cokely and Yager and McCullough and Wilson evaluated word recognition testing on Spanish speaking adults. With limited research on word recognition testing for

Spanish speaking children, all speech audiometry tests should be interpreted with caution.

With many Hispanic children interacting in both English and Spanish environments, bilingualism is of importance when conducting speech audiometry. (Iglesias, 2001; Terrazas, Batalova, & Fan, 2007). Bilingualism may also have an affect on certain speech testing. The language history of the bilingual individual is of importance including the age of acquisition of the second language, order of the languages learned, and how the second language was learned (Iglesias; Von Hapsburg & Peña, 2002). Individuals who are bilingual tend to take more time than monolinguals to process verbal materials in both languages (Von Hapsburg & Peña). Tests that are timed may affect the results of a bilingual individual. It has also been noted that individuals who are bilingual do not perform as well as monolingual speakers while listening in the presence of background noise (Von Hapsburg & Peña). Therefore, as certain speech tests are conducted using background noise and as a patient has a certain amount of time to process and elicit a response with a recorded speech test, speech tests should be interpreted and used with caution when testing a bilingual patient.

Some research has been conducted with administering auditory processing disorder tests to Hispanic children (Woods, Peña, & Martin, 2004). The Synthetic Sentence Identification test, Staggered Spondaic Word test, and the SCAN-C are available in Spanish SCAN-C from Auditec of St. Louis. Language rules (phonology, morphology, and syntax) can lead to sociocultural biases on tests that require the repetition of words and sentences, and words that are used in testing may not be in the child's vocabulary (Woods, Peña, & Martin). Test validity becomes compromised when there is a significant bias against a population (Woods, Peña, & Martin). Woods, Peña, and Martin found no significant differences between the scores of Latino-Americans and Anglo-Americans on the SCAN-C; however, Hispanic children fell into the

borderline-to-disordered category 10% more often than Anglo-American children. The scores between the two populations were similar when dialectal differences were applied, thus indicating audiologists might need to take dialectal considerations into effect when making referrals for further auditory processing testing.

ADDITIONAL AUDIOLOGIC CONCERNS WITH THE HISPANIC PEDIATRIC POPULATION

Otitis Media

Otitis media is the most common cause of mild to moderate hearing loss in the world (Smith, 2001; World Health Organization, 2006). Risk factors for otitis media include poor hygiene, lack of breastfeeding, poor nutrition, inadequate housing, and inadequate or unavailable health care (Smith; World Health Organization). Poorer quality of healthcare and access to health care are risk factors for otitis media, and many cases of otitis media can be prevented with better nutrition and improved living conditions (Smith; World Health Organization).

Previous research had suggested a higher prevalence of hearing loss in Hispanic children aged six to nineteen years compared to non-Hispanic whites and African American children (Lee, Gomez-Marin, & Lee, 1996). Lee, Gomez-Marin, and Lee found prevalence rates for a slight to mild hearing loss (16 dB to 30 dB) ranged from 56.6 per thousand for Cuban-Americans, 21.8 per thousand for Mexican-Americans, and 48.1 per thousand for Purerto Ricans compared to 11.8 per thousand for non-Hispanic whites. Prevalence rates were found for mild to moderate hearing loss and greater (greater than 30dB) to be much fewer than the rates for slight to mild hearing loss; however, the rates were still greater for Hispanics than for non-Hispanic whites. Even though this study demonstrates a higher prevalence of hearing impairment in Hispanic children, it should be of significance that bone-conduction thresholds were not

obtained. Therefore, it is unsure from this study if the hearing impairments were conductive or sensorineural.

Socioeconomic factors have been found to influence the prevalence of otitis media (Gravel & Wallace, 2000; Paradise et al., 1997; World Health Organization, 2006). Gravel and Wallace found children of lower socioeconomic backgrounds had significantly more visits to their physician for otitis media than children of middle socioeconomic status; however, there was no significant difference in hearing thresholds between children of lower or middle socioeconomic status. Paradise et al. also found a higher incidence of otitis media in children of lower socioeconomic status, who had Medicaid insurance, and who had mothers of lower education. With a higher percentage of Hispanic children being of lower socioeconomic status, having Medicaid insurance, and having mothers of lower education, Hispanic children are at a higher risk for having otitis media.

Otitis media with effusion has a great impact on the hearing thresholds of children. Gravel and Wallace (2000) found hearing thresholds to be elevated for infants with recurrent otitis media. With elevated hearing thresholds occurring with otitis media, it is imperative for children who are at a higher risk for otitis media to receive speech and language evaluations (Gravel & Wallace). Parents can be educated for early recognition of otitis media and the importance of treatment and follow-up for cases of chronic otitis media (Smith).

Microtia and the Hispanic Population

Several studies have suggested that certain populations have greater risks for microtia and atresia anomalies (Shaw, Carmichael, Kaidarova, & Harris, 2004; Yang, Carmichael, Kaidarova, & Shaw, 2004). Shaw, Carmichael, Kaidarova, and Harris collected data from 2.5 million children born in California, which revealed the prevalence of microtia was much higher among

native born Hispanics, foreign-born Hispanics, and Asians compared to non-Hispanic whites. Microtia was more prevalent among male infants, women who have had multiple births, and women who have had less than 12 years of education (Shaw, Carmichael, Kaidarova, & Harris).

With microtia being more prevalent amongst the Hispanic population, pediatric audiologists need to continually update their knowledge of technology for microtia and atresia patients, especially their knowledge of bone conduction hearing aids. Currently, there are three manufacturers who produce bone conduction hearing aids: Cochlear Americas produces the Bone Anchored Hearing Aid (BAHA), Oticon can place the Sumo DM hearing aid on to a bone conduction headband for an additional fee, and Unitron Hearing is also able to convert the UE12-PP, UE12-PPL, US80-PP, or US80-PPL into a bone conduction hearing aid. The cost of obtaining bone conduction hearing aids can also propose many challenges to the audiologist and to the child's family. For children who have Medicaid insurance, obtaining Medicaid coverage for the BAHA prior to having surgery can be very difficult. An age restriction of five years is recommended for surgery due to the thinness of the child's skull (Papsin, Sirimanna, Albert, & Bailey, 1997).

Physicians, newborn hearing screening coordinators, and audiologists also need to have an awareness of microtia and atresia and be knowledgeable of the impact microtia and atresia have on hearing. Danhauer and Johnson (2006) recommend that a newborn hearing screening program have all "team members including state coordinators, hospitals and their staffs, audiology providers, physicians (family practitioners, pediatricians, and otolaryngologists), special educators, and especially the parents" have full commitments to newborn hearing screenings. Physicians and newborn hearing screeners are amongst the first professionals to

identify newborns who have ear anomalies, and therefore, appropriate referrals need to be made to otologists and audiologists.

Cochlear Implants

Research has shown there are also disparities with cochlear implantation amongst minorities and lower socioeconomic populations compared to white and middle to upper socioeconomic populations (Stern, Yueh, Lewis, Norton, & Sie, 2005). For children, the rate at which white patients are implanted with cochlear implants is more than three times that of Hispanic patients and ten times that of black patients (Stern, Yueh, Lewis, Norton, & Sie). It was found that in the year 1997, 73% of the cochlear implant recipients were white, even though whites comprised 51.1% of the population with a severe-profound sensorineural hearing loss. The majority of the cochlear implant recipients resided in areas with higher incomes, less racially diverse, and amongst people who have higher education. Stern, Yueh, Lewis, Norton, and Sie reported family income, race/ethnicity, and household education level may also influence cochlear implantation. Other variables such as residing close to academic medical centers and having routine health care have an impact on the rate of cochlear implantation (Stern, Yueh, Lewis, Norton, & Sie). Further evidence is needed to determine the reasons why Hispanic children with similar degrees of hearing loss as non-Hispanic white children are not receiving cochlear implants at the same rate. With some research inferring Hispanic children are at a greater risk for not receiving cochlear implants, it is important for parents and other specialists working with the child to be educated about cochlear implants. It is also important for audiologists to monitor hearing aid performance and success to determine if a child is a cochlear implant candidate.

Audiology in Latin America

Parents who are from developing countries may have varying views and perceptions of hearing loss compared to parents from developed countries. For many developing countries in Latin America, hearing impairment is a low medical priority (Madriz, 2001). According to Madriz, countries in Latin America, such as Mexico, lack hearing screenings and early identification and intervention of hearing loss programs. According to Terrazas, Batalova, and Fan of the Migration Policy Institute, in 2006 there were 37.5 million foreign born individuals in the United States. Of the foreign born immigrants in 2006 in the United States, 47.2 percent were of Hispanic or Latino origin, with 30.7 percent of the total foreign born being from Mexico (Terrazas, Batalova, & Fan). Also for 2006, 52.4 percent of the 37.2 million foreign born immigrants age five and older were of limited English proficiency, which was an increase from the year 2000 (Terrazas, Batalova, & Fan). Audiologists who work with a large pediatric Hispanic population will most likely diagnose and treat children with hearing loss who have immigrated to the United States. Children born in Latin American will most likely not have had a newborn hearing screening, have late identification of hearing loss, and not have amplification (World Health Organization, 2006; Gerner de Garcia, 2008). According to the World Health Organization, fewer than one in forty people in developing countries who would benefit from a hearing aid have one. Lee, Carlson, Lee, Ray, and Markides (1991) found a low prevalence of hearing aid usage for Hispanic adults in the United States with less than 12% of Mexican Americans with a 40dB or greater hearing loss having hearing aids. This can be contributed to cost of hearing aids and a low consumer awareness of the benefit of amplification (Lee, Carlson, Lee, Ray, & Markides). The audiologist will need to work diligently with the family, speech-language pathologist, and early intervention specialists to provide optimal care for the child.

Mothers who have come to the United States from developing countries may not have had appropriate immunizations and health care. As stated previously, diseases the mother had while pregnant (rubella, syphilis, Herpes, cytomegalovirus), lack of prenatal care, and poor nutrition, are all risk factors for hearing impairment in an infant (World Health Organization).

Parents from developing countries will most likely not have the knowledge about early intervention and identification of hearing loss. Without being educated about audiology and living in a country that does not consider hearing loss a priority, an Hispanic parent in the United States of a hearing impaired child may not understand the importance of early intervention. Counseling and education need to be conducted to ensure parents understand the impact of hearing loss, especially without early intervention, will most likely result in speech, language, and literacy delays (Yoshinago-Itano, Sedey, Coulter, & Mehi, 1998; Yoshinaga-Itano & Gravel, 2001).

OTHER CONSIDERATIONS

Using Interpreters

In order to limit and decrease the communication barriers and misunderstandings between Spanish speaking families and the audiologists, interpreters should be utilized. Medical interpreters should be used when parents are not proficient in English (American Academy of Pediatrics, 2004). In order to provide the most appropriate care to non-English speaking families, medical interpreters need to relay all information from the audiologist to the family in an appropriate and effective manner, and be easily understood by the patient's family. However, there are barriers to providing and using medical interpreters, including: limited availability, additional time that is needed, cost, arriving in time for the appointment, dialectal differences between the family and the interpreter, and the knowledge and training of audiology and

audiology terminology (American Academy of Pediatrics, 2004; Casey, Blewett, & Call, 2004; Flores et al., 2003; Talamantes, Lindeman, & Mouton, 2001). When an interpreter is needed for a diagnostic evaluation, the interpreter needs to be familiar and knowledgeable of audiologic terms, especially when explaining ABR and OAE test results. A study by Flores et al., found on average thirty one medical errors occur per patient encounter with a medical interpreter, with the most common error being omission followed by false fluencies. It is recommended for medical interpreters to be trained to fully translate every person's utterances including the patient, clinician, and patient's family members (Flores et al.). Utilizing an interpreter that is easily understood by the patient and the patient's family is necessary in order for correct information to be relayed between the patient's family and the clinician (Flores et. al). Therefore, dialectal differences between the interpreter and the patient's family need to be taken into consideration as dialectal differences vary across the Spanish language (Iglesias, 2001). Interpreters are a great resource when working with patients and families of limited English proficiency; however, interpreters should be trained in the field of audiology before being utilized.

Educational Options for Hispanic Children Identified with Hearing Impairment

Culture, language, religious beliefs, access to resources and intervention impact the decisions Hispanic parents of newly identified children with hearing loss have to make. Often, parents rely on information given by professionals, cost of services, services provided by the school district, and the availability of the services (Steinberg, Bain, Li, Delgado, & Ruperto, 2003). Decisions are often made with limited access to information and resources, and in the presence of cultural and language barriers (Steinberg, Bain, Li, Delgado, & Ruperto). Steinberg, Bain, Li, Delgado, and Ruperto found fourteen of the twenty-seven families they analyzed to be active in seeking medical, audiological, and educational services for their hearing impaired child,

compared to ten of the families being passive in seeking services. From the limited number of families analyzed in this study, it was found that parents are for the most part active in seeking the best services for their child; therefore, they need to be given appropriate information and resources to better serve their child and optimize their decision making process.

Hispanic families have important decisions to make regarding the education of their hearing impaired child. Hispanics and hearing impaired students tend to have more difficulty in school and scholastic achievement; therefore, it is imperative to have the appropriate education and intervention (Walker-Vann, 1998). Hispanic children in general are more likely to drop out of school and have poorer scores on reading, writing, mathematics, and science proficiency tests (Iglesias, 2001). Hispanic children with hearing loss are at a greater risk for difficulty in school (Walker-Vann, 1998). Being Hispanic and having a hearing impairment can cause additional stress while in school including having a language barrier, being of a low socioeconomic status, and having cultural differences (Walker-Vann). With these risk factors for poorer academic success, it is imperative to determine the most appropriate educational option for the child in order to have academic success.

Many of the educational options that influence the family's decisions are dependent on the communication mode of the child and the culture of the family. Parents need to be given information of all of the communication modes that are available for their child. Informational brochures and packets need to be provided to the families and in Spanish if Spanish is the predominant language. Families need to be given multiple sources of information that they can access in order to gain more information regarding educational options. The choice of communication mode is a difficult decision to make if the language spoken in the school is different than the language spoken at home. Families might often have to learn two additional

languages: English and American Sign Language (Steinberg, Bain, Li, Delgado, & Ruperto, 2003). Parents also need to decide with the audiologists if the child will be in an auditory oral environment, total communication, or a sign language only environment.

Many Hispanic parents want their child to learn Spanish and still be apart of the Hispanic culture, which then becomes another aspect of the difficult decisions parents have to make (Steinberg, Bain, Li, Delgado, & Ruperto, 2003). For children who are Hispanic and relate themselves with the Deaf culture, they then belong within two minority populations and cultures. Most Deaf individuals are bilingual and bicultural by using American Sign Language and belong to the Deaf culture but then associate with the hearing world. For Hispanic deaf individuals, they often are tricultural and trilingual, if Spanish is spoken in their home (Walker-Van, 1998). Therefore, much thought and deliberation needs to be conducted in the decision process of the best education option for a Hispanic hearing impaired child.

Educational options for hearing impaired children include attending a public school, an option school, a deaf education school, or a residential school. Public schools may not be fully equipped to appropriately educate non-English speaking hearing impaired children. Steniberg, Bain, Li, Delgado, & Ruperto (2003) found many public schools only offered Total Communication to the Hispanic families. Most Hispanic families will not send their child to a residential school for the deaf. Traditionally and culturally, most Hispanic families do not want their children living away from them (Steinberg, Bain, Li, Delgado, & Ruperto). Not wanting to send their child to a residential school and having a lack of other schooling options in their area, most hearing impaired Hispanic children are enrolled in public schools (Steinberg, Bain, Li, Delgado, & Ruperto).

Resources and Materials Available for Spanish Speaking Families

It is important for audiologists who have many pediatric Hispanic patients to become familiar with resources available for the families and for themselves. Audiologists should be aware and knowledgeable as updated and newer language specific assessment tools become available. Audiologists need to be continually aware of the most recent and current resources and brochures available for families who do not have English as a predominant language.

Brochures for developmental milestones, early intervention, hearing loss, hearing aids, and educational services/options should be provided in Spanish. Brochures and resources should not merely be translated into Spanish from English, but should be culturally appropriate (Steinberg, Bain, Li, Delgado, & Ruperto, 2003). Two national professional organizations, ASHA and AAA, have several brochures that are available in Spanish including: *How Does Your Child Hear and Talk* (ASHA), *Your Baby's Hearing* (AAA), and *Learning Two Languages* (ASHA). The Culturally and Linguistically Appropriate Services (CLAS) Early Childhood Research Institute provides materials and information in Spanish for parents and professionals such as the Birth to Six Prescreen Chart for Vision, Hearing and Development, Developmental Growth for Children 3 to 5 years of Age, and Early Intervention is Critical. Another resource for Hispanic parents of hearing impaired children might be parenting classes and meeting with other parents. Parents might benefit from collaborating with other Hispanic parents about communication modes, educational options, and sharing information.

CONCLUSION

It is imperative for audiologists to be culturally diverse and sensitive in order to provide the optimal care to a Hispanic child and the family. Continuing education and staying up-to-date about current tools and resources are important. With the increase in the number of Hispanic

children in the United States, there is a significant need for more research in audiology pertaining to the Hispanic population. Further research can be conducted in the Hispanic pediatric population regarding the average age of diagnose of a hearing loss, average age of amplification, average age of cochlear implantation, and implications of risk factors for hearing loss. Further research needs to be conducted using Spanish Word Recognition word lists with children. Another important area to consider would be speech and language development of hearing impaired children living and learning in a bilingual and bicultural environment. There is also a significant need for more materials and resources to be available in Spanish including hearing aid and cochlear implant booklets, questionnaires, educational options, and speech testing.

LIST OF REFERENCES

American Academy of Audiology (2003). Pediatric Amplification Protocol.

American Academy of Pediatrics. (2000). Race/ethnicity, gender, socioeconomic status--research exploring their effects on child health: a subject review. *Pediatrics*, 105 (6), 1349-1351.

American Academy of Pediatrics. (2004). Ensuring culturally effective care: implications for education and health policy. *Pediatrics*, 114 (1), 1677-1685.

American Speech-Language-Hearing Association (1985). Clinical management of communicatively handicapped minority language populations [Position Statement]. Retrieved March 16, 2008, from www.asha.org/policy

American Speech-Language-Hearing Association (2003). Code of ethics (revised). *ASHA Supplement*, 23, 13-15.

American Speech-Language-Hearing Association (2006). Roles, knowledge, and skills: Audiologists providing clinical services to infants and young children birth to five years of age [Knowledge and skills]. Retrieved March 16, 2008 from http://www.asha.org/reference

Anderson, K. & Smaldino, J. (2000). Children's Home Inventory of Listening Difficulties (CHILD). Retrieved December 10, 2007, from Phonak Hearing Systems Web site: http://www.phonak.com

Anderson, K. (2002). Early Listening Function (ELF) instrument for infants and toddlers with hearing loss. Retrieved December 10, 2007, from Phonak Hearing Systems Web site: http://www.phonak.com

Buysse, V., Castro, D. C., West, T., & Skinner, M. (2005). Addressing the needs of Latino children : A national survey of state administrators of early childhood programs. *Early Childhood Research Quarterly*, 20, 146-163.

Barsky-Firkser, L., & Sun, S. (1997). Universal Newborn Hearing Screenings: A Three Year Experience. *Pediatrics*, 99 (6), e4.

Betancourt, J. R., Carrillo, J. E., Green, A. R., & Maina, A. (2004). Barriers to he promotion and disease prevention in the Latino population. *Clinical Cornerstone*, 6(3), 16-29.

Beverly-Ducker, K. (2003). Multicultural Issues in Audiology. *Perspectives on Hearing and Hearing Disorders in Childhood*, 13(1), 12-15.

Canale, A., Favero, E., Lacilla, M., Recchia, E., Schindler, A., Roggero, N., & Albera, R. (2006). Age at diagnosis of deaf babies: a retrospective analysis highlighting the advantage of

newborn hearing screening. *International Journal of Pediatric Otorhinolaryngology*, 70, 1283-1289.

Casey, M. M., Blewett, L. A., & Call, K. T. (2004). Providing health care to Latino immigrants: community-based efforts in the rural Midwest. *Research and Practice*, 94 (10), 1709-1711.

Cokely, J. A., & Yager, C. R. (1993). Scoring Spanish word recognition measures. *Ear and Hearing*, 14 (6), 395-400.

Danhauer, J. L. & Johnson, C. E. (1996). A case study of an emerging community-based early hearing detection and intervention program: Part I. parents' compliance. *American Journal of Audiology*, 15(1), 25-32.

Donovan, E. F., & Rose, B. (2005). Use of evidence to reduce child health disparities in the U. S.: an introduction to this issue of *Public Health Reports*. *Public Health Reports*, 120, 366-369.

Flores, G. et al. (2003). Errors in medical interpretation and their potential clinical consequences `in pediatric encounters. *Pediatrics*, 111(1), 6-14.

Flores, G., Abreu, M., Schwartz, I., &Hill, M. (2000). The importance of language and culture in pediatric care: Case studies from the Latino community. *Journal of Pediatrics*, 137 (6), 842-848.

Flores, G., Olson, L., & Tomany-Korman, S. C. (2005). Racial and ethnic disparities in early childhood health and health care. *Pediatrics*, 115 (2), 183-193.

Gerner de Garcia, B. (2008, March 5). *The Latin American and the Caribbean newborn hearing screening survey: Process and results*. Presented at the Gallaudet Research Institute: First Wednesday Research Seminar. Retrieved March 16, 2008 from http://gri.gallaudet.edu/News/seminar.php.

Gravel, J. S., & Wallace, I. F. (2000). The effects of otitis media with effusion on hearing in the first three years of life. *Journal of Speech, Language, and Hearing Research*, 43, 631-644.

Hakimzadeh, S. & D'Vera, C. (2007, November). *English usage among Hispanics in the United States*. Retrieved November 10, 2007 from the Pew Hispanic Center Web site http://pewhispanic.org/files/reports/82.pdf

Janota, J. and the Surveys and Information Team (2006). *Audiology survey report: Survey methodology, respondent demographics, and glossary*. Rockville, MD: American Speech-Language-Hearing Association.

Kandel, W. & Newman, C. (2004). *Rural* Hispanics Employment and Residential Trends.

Amber Waves, 2 (9), 38-45.

Krumm, M. (2005, Nov. 8). Audiology telepractice moves from theory to treatment. *The ASHA Leader*, 22-23, 45.

Iglesias, A. (2001). What test should I use. *Seminars in Speech and Language*, 22 (1), 3-14.

Lee, D. J., Carlson, D. L., Lee, H. M., Ray, L. A., & Markides, K. S. (1991). Hearing loss and hearing aid use in Hispanic adults: results from the Hispanic health and nutrition examination survey. *American Journal of Public Health*, 81, 1471-1474.

Lee, D.J., Gomez-Marin, O., & Lee, H.M. (1996). Prevalence of childhood hearing loss: The Hispanic health and nutrition examination survey and the national health and nutrition examination survey II. *American Journal Of Epidemiology*, 144(5), 442-449.

Madriz, J.J. (2001). Audiology in Latin America: hearing impairment, resources, and services. *Scandinavian Audiology*, 30 (53), 85-92.

Martin, F. N. & Hart, D. B. (1978). Measurement of speech thresholds of Spanish-speaking children by non –Spanish speaking clinicians. *Journal of Speech and Hearing Disorders*, 43, 255-262

Mayberry, R. M.; Mili, Fatima; & Ofili, E. (2000). Racial and ethnic differences in access to medical care. *Medical Care Research and Review*, 57 (1), 108-145.

McCullough, J. A. & Wilson, R. H. (2001). Performance on a Spanish Picture-Identification Task Using a Multimedia Format. *Journal of the American Academy of Audiology*, 12, 254-260.

McManus, P., Levtov, R., White, K., Forsman, I., Foust, T. (2005, July). *Medicaid Reimbursement of Hearing Services*. National Center for Hearing Assessment and Management. Retrieved on May 25 from www.infanthearing.org

Merriam-Webster Online Dictionary (11th ed.) (2005) Retrieved on March 1, 2008 from http://www.merriam-webster.com/

Newacheck, P. W., Hughes, D. C., & Stoddard, J. J. (1996). Children's access to primary care: differences by race, income, and insurance status. *Pediatrics*, 97 (1). 26-32.

Papsin, B. C., Sirimanna, T. K. S., Albert, D. M., Bailey, C. M (1997). Surgical experience with bone-anchored hearing aids in children. *The Laryngoscope*, 107(6), 801-806.

Paradise, J. L. et al. (1997). Otitis media in 2,253 Pittsburgh –area infants: prevalence and risk factors during the first two years of life. *Pediatrics*, 99, 318-333.

Racine, A. D.; Kaestner, R., Joyce, T. J.; & Colman, G. J. (2001). Differential impact ofrecent

Medicaid expansions by race and ethnicity. *Pediatrics*, 108 (5), 1135-1141.

Sha, N. S., & Carrasquillo, O. (2006). Twelve-year trends in health insurance coverage among Latinos, by subgroup and immigration status. *Health Affairs*, 25 (6), 1612- 1619.

Shaw, G. M., Carmichael, S. L., Kaidarova, Z., & Harris, J. A. (2004). Epidemiologic characteristics of anotia and microtia in California, 1989–1997. *Birth Defects Research (Part A)*, 70, 472-475.

Shone, L. P. et al. (2003). The role of race and ethnicity in the state children's health insurance program (SCHIP) in four states: are there baseline disparities, and what do they mean for SCHIP. *Pediatrics*, 112 (6), 521-532.

Smith, A.W. (2001). WHO activities for prevention of deafness and hearing impairment in children. *Scandinavian Audiology*, 30(53), 93-100.

Steinberg, A., Bain, L., Li, Y., Delgado, G., & Ruperto, V. (2003). Decisions Hispanic families make after the identification of deafness. *Journal of Deaf Studies and Deaf Education*, 8 (3), 291-314.

Stern, R. E., Yueh, B., Lewis, C., Norton, S., & Sie, K. C. Y. (2005). Recent epidemiology of pediatric cochlear implantation in the United States: disparity among children of different ethnicity and socioeconomic status. *Laryngoscope*, 115, 125-131.

Tafoya, S. (2004, December). *Shades of Belonging*. Retrieved March 10, 2008 from the Pew Hispanic Center Web site: http://pewhispanic.org/files/reports/35.pdf

Talamantes, M., Lindeman, R., & Mouton, C. (1 October, 2001). Health and health care of Hispanic/Latino American elders. Retrieved April 22, 2008 from Stanford University, Ethnogeriatric Curriculum Module 2nd Edition Web site: http://www.stanford.edu/group/ethnoger/

Terrazas, A., Batalova, J., & Fan, V. (2006, October). Frequently requested statistics immigrants in the United States. Retrieved March 10, 2008 from the Migration Policy Institute Web site: http://www.migrationinformation.org/USfocus/display.cfm?id=649#1

United States Census Bureau (2004a). U.S. interim projections by age, sex, race, and Hispanic origin. Retrieved on October 28, 2007 from http://www.census.gov/ipc/www/usinterimproj/

United States Census Bureau (2004c). Table FM-2. All parent/child situations, by type, race, and Hispanic origin of householder or reference person: 1970 to present. Retrieved November 2, 2007 from http://www.census.gov/population/socdemo/hh-fam/tabFM-2.pdf

United States Census Bureau (2007). Minority Population Tops 100 Million Retrieved on

October 28, 2007 from http://www.census.gov/Press-Release/www/releases/archives/population/010048.html

United States Department of Agriculture Economic Research Service (2007, October 2). An enhanced quality of life for rural Americans. Retrieved March 16, 2008, from www.ers.usda.gov/emphases/rural/.

Valdez, R. B., Giachello, A., Rodriguez-Trias, H., Gomez, P., & de la Rocha, C. (1993). Improving access to health care in Latino communities. *Public Health Reports*, 108 (5), 534-539.

Von Hapsburg, D., & Peña, E. D. (2002). Understanding bilingualism and its impact on speech audiometry. *Journal of Speech, Language, and Hearing Research*, 45, 202-213.

Walker-Van, C. (1998). Profiling Hispanic deaf students: a first step toward solving the greater problems. *American Annals of the Deaf*, 143 (1), 46-54.

Warda, M.R. (2000). Mexican American perceptions of cultural competent care. *Western Journal of Nursing Research*, 22(2), 203-224.

Woods, A. G., Peña, E. D., & Martin, F. N. (2004). Exploring possible sociocultural bias on SCAN-C. *American Journal of Audiology*, 13, 173-184.

World Health Organization (March 2006). Prevention of deafness and hearing impairment. Retrieved on March 28, 2008 from http://www.who.int/pbd/deafness/en/

Yang, J., Carmichael, S. L., Kaidarova, Z., & Shaw, G. M. (2004). Risks of selected congenital malformations among offspring of mixed race-ethnicity. *Birth Defects Research (Part A)*, 70, 820-824.

Yoshinaga-Itano, C., & Gravel, J. S. (2001). The Evidence for Newborn Hearing Screening. *American Journal of Audiology*, 10, 6, 62-64.

Yoshinago-Itano, C., Sedey, A. L., Coulter, D. K., & Mehi, A. L. (1998). Language of early-and later-identified children with hearing loss. *Pediatrics*, 102, 1161-1171.